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ABSTRACT

The role of research in school psychology is discussed. An intervention perspective is developed, and its uses and limitations are analyzed. The author discusses the characteristics of different research strategies and gives examples that illustrate the nature of interaction research and its educational implications. Criteria for evaluating research and its educational relevance are presented, and problems in utilizing research in the schools are described in ecological terms. Finally, these prospective developments are related to the future of school psychology. (Author)

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Research in School Psychology: The Problem and the Promise

Distinguished Service Award invited address, American Psychological Association, September, 1979, Beeman N. Phillips (Expanded version of this paper to appear as a chapter in the Handbook on School Psychology, to be published by John Wiley and Sons)

There are two radically different views of science and research. Miguel De Unamuno, in The Tragic Sense of Life (1913), says that "Science is a cemetery of dead ideas, even though life may issue from them," and in commenting on research Wilson Mizner is supposed to have noted that "when you steal from one author, it's plagiarism; if you steal from many, it's research." In a different vein, Pavlov in Bequest to the Academic Youth of Soviet Russia (1936) said that "science claims a man's whole life. Had he two lives they would not suffice. Science demands an undivided allegiance from its followers. In your work and in your research there must always be passion." Going further with this point of view, Einstein in an address to the California Institute of Technology, said that "It is not enough that you should understand about applied science in order that your work may increase man's blessings. Concern for man himself and his fate must always form the chief interest of all technical endeavors . . . in order that the creations of our mind shall be a blessing and not a curse to mankind."

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RESEARCH SHOULD INFORM OUR ACTIONS AS SCHOOL PSYCHOLOGISTS

These words of Pavlow and Einstein, and the ideas they represent, are a fitting prologue to this presentation. The point

of view to be espoused, in response to the question, What is the purpose of research in school psychology", is that research should inform our actions as school psychologists. It should influence the on-the-job behaviors and the kind and quality of learning and professional growth of the school psychologist, as well as the kind and quality of the relations between the school psychologist and others, and the school environment. That is, research as the basis of action is effective to the extent that it makes the school psychologist (1) aware of the major variables relevant to the problem, (2) able to solve the problem in such a way that it remains solved, at least until the external situation changes in important ways, and (3) these can be accomplished without reducing the present level of problem solving effectiveness of the school psychologist, or others in the system.

DANGERS IN A RESEARCH-IN-ACTION PERSPECTIVE AND LIMITS OF RESEARCH IN DECISION-MAKING

The scientific method of problem solving of course connotes more than science or the results of science. It also is scientific in terms of methodology, and it requires rationality, verification, advocacy, and sanctions for control and manipulation of individuals as well as the environment. This means that, while science and research provides the school psychologist with insight into how to influence others and manage the school environment, there also are, as Argyris (1975) points out, dangers in a research-in-action perspective.

We must realize, for example, that the meaning of scientific concepts is given to us, and their validity is defined

by others. This represents a potentially powerful source of control over the school psychologist, since others determine what is valid information. The strategies of science and scientific methods are another potential source of covert control over the school psychologist. To some degree, science, scientific methods, and research-in-action "programs" school psychologists and reduces their choices in problem solving and decisions. In this way, it can discourage public testing of ideas and reduce feedback, so that problem solving goes on within the confines of the available research, and the "reach" of scientific method. For this reason, while the purpose of science is to describe reality, and the school psychologist wants to know the reality of the individual and the school environment, if one remains exclusively within this scientific reality, it is difficult to offer new options in problem solving. And there is the additional danger that the reality created by science and research, which defines what is, may become the sole basis for defining what ought to be.

As a case in point, Skinner (1968) has described the inefficiencies of prevailing teaching methods and has provided good models of how to specify desired behavioral outcomes and shape the behavior of the student. But if our hope is to educate rather than train students one can question Skinner's prescription for the schools. If by training we mean methodical, thorough instruction and guidance with a specific end in mind, then those aspects of schooling that can properly be called training stand to gain much from a Skinnerian analysis. In contrast, if the objectives of education are to educate for citizenship, leadership, choice

capability, enjoyment of a wide range of experience, creation of values, etc., then the validity of a Skinnerian approach is open to question.

As a second illustration of this danger, what is done about a school problem depends on how it is defined, and problem definitions are based on assumptions about the causes of the problem and where they lie. If the causes of a problem are defined in child-centered terms, then it would be logical to initiate child-changing interventions. If, on the other hand, explanations are situation-centered, then efforts toward intervention would logically have a system-centered orientation.

There is also an ethical issue, if one successfully uses research in actions that would produce changes in others, and the school environment. But this would be more serious if such actions are governed too narrowly by personal considerations and facilitate inequality, injustice, and unilateral domination. Moreover, this is less of an issue than it appears to be since we know from a number of different sources that the level of utilization of research and its perceived importance and effectiveness in schooling is generally thought to be low--and inadequate. This is indicated in studies of training by Goh (1977), the role of research in practice by Meacham and Peckham (1978), the perceived effectiveness of research in schools by Kratwohl (1974), and the importance school administrators attach to research functions of school psychologists by Kaplan, Chrim and Clancy (1977).

In addition, it is important to recognize the inherent limitations of research in decisions, and to recognize the proper

functions of research activity. For example, the school psychologist may carry through a study of some prescribed school problem or situation and draw conclusions as to the nature of the problem or situation. Though such research-based reports may prove useful, they don't give answers and make decisions. If the report goes beyond evaluation, and becomes an advocacy report by making a number of recommendations, the report may have greater impact since in this case the report not only evaluates research in relation to the problem but also proposes a solution and some kind of intervention or action. Instead of proposing a solution, however, the school psychologist may propose a list of options, illustrating a range of possibilities, each with its own advantages and disadvantages. In this way, the decision-maker, who frequently is not the school psychologist, has in front of him the range of opportunities and the trade offs which go with them. But even in these best of circumstances the likelihood of a significant impact on the decision maker and/or schooling is apt to be disappointingly small, due to the lack of relevance of the research, recommendations, or options, or to a host of other factors to which the decision-maker responds.

THE BOUNDARIES OF RESEARCH IN SCHOOL PSYCHOLOGY FROM THE PERSPECTIVE OF ROLE/FUNCTIONS AND SCHOOL INTERVENTION

Though it is a simple matter to state the importance of research, the more formidable task is to assess the boundaries of research in school psychology. A major complexity in this regard is that school psychology has historically had much trouble defining itself, although it also has become much more comprehensive. This is illustrated by Table 1, which is based on Hunter and Lambert's

(1974) survey of the role-functions ascribed to school psychologists. The training components identified by Goh (1977) in his survey of school psychology training programs, which are reproduced in Table 2, also illustrate this expansionistic theme.

An underlying factor in the increasingly comprehensive nature of school psychology is the integration of school, family, and social services that began in the late 1950's when the nation turned to the schools to effect major social transformation (Bebenham and Parsons, 1978). This has led to the gradual integration of family and social services with the educational system. If this trend continues, schools will become more like family environments, with teachers assuming roles more like parents, especially in the lower grades. As a corollary, parents will become more like teachers and families will become home-based learning centers.

In response to these developments, the potential research base of school psychology also has expanded greatly. One approach to this situation would be to claim that all of the social and behavioral sciences are school psychology's appropriate research base. While such a view has legitimacy, the obstacles of encompassing that total body of research are seemingly insurmountable. And more importantly, much of that vast research base is irrelevant to the problems of schooling. What is needed, therefore, is a way to establish priorities on what research to pursue. The heart of the concept of role/functions is intervention, and in the most fundamental sense, school psychologists exist to intervene. We, therefore, assign the highest priority to research that has the greatest potential as the basis for school intervention.

GETTING BEYOND MAIN EFFECTS TO INTERACTIONS: CRONBACH'S ATI PARADIGM

However, taking such a position is only a beginning. The issue is complex and many-faceted, and we do not yet have a theoretical and practical view of the situation that is complete and fully credible. But hopefully this account of the research perspective that is likely to be most useful to school intervention will contribute something to an understanding of the problem and the promise of research in school psychology. Further, it is important to note that the point of view that is developed is traceable to Cronbach, especially his two articles appearing in the American Psychologist (1957, 1975).

What he argues for is combining the experimental and individual differences approaches in psychology. We need in Cronbach's view to get beyond main effects to interactions. What is true for some children is not true for other children. Aptitude-treatment interactions, according to Cronbach, are not only practically important; they have theoretical significance as well. Table 3, which is derived from Cronbach (especially 1975), summarizes some of the distinguishing features of interaction research strategies, in contrast to the manipulative and correlational strategies which are the dominant research strategies in psychology and education at this time.

In an historical sense, Cronbach's views are not new. More than 75 years ago Binet developed his intelligence test to identify children who would benefit from educational methods different from those used in regular classrooms. But over the years this important precedent was to a considerable degree lost sight of or misunderstood and misapplied. In recent years the civil rights

movement has forced us to re-examine our distortions of the original Binet position, and to see the purpose of intelligence testing as finding ways to modify curriculum and instruction so as to provide more optimal learning opportunities for those differing in intellectual functioning.

In contrast to nomothetic theory which is geared to thinking in terms of mean performance, interaction theory is geared to thinking in terms of intervening processes which interact in some way to relate the independent variable to the dependent variable. For example, if some operationalized intervention is the independent variable and the dependent variable is some measure of school performance, then a personal characteristic such as anxiety level would be a useful intervening variable if different levels of anxiety have different functions for this particular intervention, leading to different levels of school performance for subjects differing in anxiety. Interaction research, however, will make little headway as long as we identify the important individual difference variables as sex, social status, and the like, and nomothetic approaches themselves are likely to be helpful in identifying process variables which in fact do intervene between independent and dependent variables. As Underwood (1975) so elegantly illustrates, individual differences can be the crucible in theory construction from a nomothetic orientation which in turn, I would add, can be the means to bring interactions into the mainstream of psychological and educational research.

To illustrate the nature and scope of the interaction perspective, we can look at several fields of psychology pertinent to school psychology. The school psychologist, for example, communicates

in many ways, with the aim of persuading others, and as McGuire (1969) has shown, characteristics of the persuader, listener, message, and setting influence response to persuasive communications. Another example which Cronbach gives is in the area of personality. Quoting Mischel (1973), he points out that to predict a person's voluntary delay of gratification (a matter important in schooling, especially for young children), one would need to know the person's age, sex, the particular object the person is waiting for, the consequences of not waiting, and a host of other things.

The third example is from the area of aptitude and instructional methods (Cronbach and Snow, 1977). Here the research up to now is not that encouraging, although intelligence consistently interacts with various instructional methods. Cronbach, Snow, and others who have reviewed this literature point out, however, that the dearth of replicated interactions in this area probably results from the inefficient research methods utilized.

BEYOND ATI'S TO RECIPROCAL DETERMINISM AND THE TIMES AS A SOURCE OF INTERACTIONS

In social learning theory, Bandura (1977, 1978) has extended the interactional viewpoint, by going beyond the interdependence of personal and environmental influences to a conceptualization of interaction in terms of "reciprocal determinism." In this perspective there is a continuous reciprocal interaction between behavior (B), cognitive and other internal "events" (P), and external environmental (E) factors. As shown in Figure 1, this contrasts with views of interactionism where P and E factors are treated as independent influences that combine to produce behavior, or views

where personal and situational factors are considered to be interdependent causes of behavior. In both these latter views behavior is treated as though it were a biproduct, and variations in behavior are examined in terms of the contribution of the Persons, Situations, and Person X Situation components to such variations.

The concept of interaction is extended still further when one moves to the level of interpersonal behavior and examines how people reciprocally influence each other. The significance of these aspects of interaction, and those when the focus moves to the interdependence between components of organizations, social subsystems, and systems have been discussed at length by Buss (1977). He reviews the different approaches to interactionism but emphasizes the systems paradigm.

The times also are a source of interactions, according to Cronbach (1975), leading to what might be called the intergenerational hypothesis. For example, a decade from now with the drastic changes in school brought about by integration, mainstreaming of the handicapped, changes in the economy, and in the family, what produced the best results in schooling in past decades may no longer be valid generalizations. We tend to speak of scientific conclusions and research evidence as if they were eternal. But as conditions change generalizations about behavior also change. One of the best documented findings in psychology is that distributed practice is superior to massed practice, yet as Ghiselli (1974) has noted, even such a venerated finding may not remain valid from one generation to the next. In a similar vein, Atkinson (1974) says that the success of Lewin's studies of level of aspiration were due to

the fact that subjects drawn from in and around German universities, and later American universities, in the years prior to World War II were homogeneously high in need for achievement, and low in anxiety.

Bronfenbrenner's (1958) backward look at research on middle class and lower class parenting in the 1930's, compared to the 1950's, is still another example. He found that class differences in the 1950's were sometimes the reverse of those observed in the 1930's.

Therefore, we cannot store up generalizations over long periods of time, but must realize that as fundamental societal conditions change it is likely that interventions increasingly have different effects, interacting with important facets of those changed socio-cultural conditions. As students change in aspirations, motivation and in other personality characteristics, and as child rearing and other socialization practices change, we can assume that the factors conducive to effective schooling also change. The student's personality, for example, enters into relations with the teacher's characteristics, so that teaching effectiveness factors that held in earlier decades may no longer apply.

EDUCATIONAL IMPLICATIONS OF INTERACTION

Having subscribed to this new direction for research in school psychology, the question is not whether we should pursue it. But on what level? And how? Can we expect the school psychologist to be heavily engaged in doing research, or should we emphasize reading, evaluating, and utilizing research? We are attracted to the latter because of the evidence, and if this assumption is valid,

then our diagnosis and prescription needs to stress aspects of reading and evaluating research that are important in the context of school intervention.

In the first place, we must examine the conceptual status of individual and situational differences variables and their role in existing research and the school intervention process. For this purpose we have useful taxonomies of individual differences in psychology, but in a psychology of interactions between personal and situational factors we need conceptualizations of situational variables, and at present we don't have taxonomies of situations comparable to those for individual differences. For school psychology this is particularly crucial, and while it has not incorporated situational differences variables, the ATI conception can be logically extended to situations x persons x behaviors matrices. Cronbach and Snow's (1977) analysis of research on interactions between aptitudes and instructional methods, for example, can be extrapolated in this way. An "aptitude" can refer to any characteristic of the child in school that affects his response to a "treatment," and a "treatment" can implicitly include situational differences as well as all forms of school intervention.

In these circumstances, i.e., when characteristics of the person and aspects of the situation enter into complex interaction, a general statement about an intervention effect is misleading because the effect often will be inconsistent, depending on higher order interactions. An attribute is likewise an uncertain basis for prediction when interactions are present, since the value of the attribute as a predictor depends on which intervention is used.

In attending to interactions, therefore, our analysis is considerably extended, so that skill, patience, a large amount of time, and much fortitude is required of the school psychologist who would evaluate research from this perspective.

To further such an approach to analysis, it would be helpful to formulate the basic characteristics of interaction research in terms of educational implications. For this purpose, we will start with the instructional paradigm shown in Figure 2. In this paradigm, individual differences variables are "learner charateristics," and instructional intervention includes both teaching method (i.e., the form of instruction) and task characteristics (i.e., the content, or curricular aspects of instruction). And in asking the question, When are individual difference variables educationally useful? the answer should be that they are useful, in the sense of having implications for instructional intervention, only when measures of individual differences and instructional interventions can be shown to interact.

There are two types of interaction effects that enter into such instructional intervention decisions. And these can be illustrated using a 2 x 2 analysis of variance model, where there are A and B main effects, and an A x B interaction effect. Using the results depicted in Figure 3, graphs 1, 2, and 3 represent ordinal interactions, i.e., treatment lines diverge but don't cross. In contrast, graph 4 represents a disordinal interaction since the treatment lines diverge and cross.

Although both types of interactions have educational implications, differences in attributes must produce negative effects rather than only differences in amount of positive effects before

being educationally significant in the sense of calling for different instructional interventions for different types of students. In other words, only a disordinal interaction would lead to the recommendation to use different educational treatments for different children. This is the case for the results in graph 4, so here one would match treatment to attribute, assigning the "proposed" intervention to Hi attribute children, and the "present" intervention to Lo attribute children.

In addition to matching treatment to attribute, which one normally would do when disordinal interaction is involved, one can also train the attribute, if it is trainable, when ordinal interaction occurs. This would be particularly relevant in the case represented by graph 1, for if the Lo attribute students can be brought up to the Hi attribute level, then the proposed treatment would be selected since, after successful attribute retraining, learning outcome would be enhanced for all students.

DEVELOPING A PERSONAL ACQUISITION-OF-KNOWLEDGE SYSTEM[1]

We have described a research approach that has no tradition, and it certainly is not immensely popular. Nevertheless, there are literally thousands of studies, reports, etc., that fit within the boundaries set forth. Our diagnosis of this situation stresses the importance of continued, regular information acquisition, and the development by every school psychologist of a personal acquistion-of-knowledge system to collect, evaluate, and use this knowledge. And in our prescription, we stress how reading and evaluating research can be made more helpful,

[1]Portions of this section are based on a class paper by Sandra Olson, a PhD student in school psychology at The University of Texas, and her assistance is gratefully acknowledged.

although at the same time creating an enormous problem.

The growth of knowledge is well documented, and while proliferation has been greatest in the natural and physical sciences (Committee on Information in the Behavioral Sciences, 1967), there has been a phenomenal expansion in the social and behavioral sciences as well. Dubin (1972) reports, as an example, that there was a 300 percent increase in the number of psychological abstracts in the period from 1961 to 1970, with the largest gains occurring in educational psychology. In school psychology, as elsewhere, the effective utilization of this vastly increasing and changing body of knowledge presents a formidable challenge, even when the delimitations that have been presented are taken into account.

One response to this problem has been the development of computerized storage and information retrieval systems. Chun, Cobb, French, and Seashore (1973) illustrate such a solution in their efforts at developing a system for the storage and retrieval of information on psychological measures. Using an estimate based on work by Ruch (1933) they report that by the 1930's there were over 1,000 educational and psychological measures, and they further cite a study by Bonjean, Hill, and McLemore (1967) in which they pointed out that 2,080 different measures had been used in four leading sociological journals between 1954-1965. They further report that in a sampling they made of articles in 15 measurement-related journals covering the 1960-1969 period, approximately 2,500 different measures appeared. Considering all factors, they estimate there may be as many as 10,000 measures altogether in psychology and related fields. To deal with this situation they

developed a computerized storage-retrieval system based on the AUTONOTE system of Reitman, Roberts, Sauvain, and Wheeler (1969).

This illustrates a solution to an enormous problem, with regard to only a single type of information. It also indicates the nature of the information production problem, and the enormity of the problem for the school psychologist. Though there is much that needs to be done, there are a number of centralized sources of information available with which the school psychologist must be familiar. One of these is the Educational Resources Information Center (ERIC), which was started by the USOE in 1964 to collect, abstract, and make available information on education, psychology, and related areas. One ERIC index, the Current Index to Journals in Education (CIJE) is compiled on a monthly basis from journals related to the general field of education. The other ERIC index is Research in Education (RIE) which contains abstracts of research that has appeared in nonjournal sources. Users of the ERIC system often depend on the ERIC Thesaurus, which contains descriptors under which articles in CIJE may be referenced.

Those who have emphasized the importance of continued, regular information acquisition have also proposed other methods, in addition to sophisticated computerized systems, to collect, evaluate, and use this knowledge. These proposals by Elkinton (1967), Fuller (1968), Gaeke and Gaeke (1973), Olson (1974), Pearson (1970) and Rice (1977) for example, reinforce the need for more continuing education programs and requirements, although such efforts need to give more attention than is typically the case to active rather than passive approaches to knowledge acquisition. A promising move in that direction is represented by the recently

approved Texas Psychological Association guidelines shown in Table 4, which provide continuing education credit for reading and evaluating research, conducting and reporting research, as well as credit for other research-related activities.

From such proposals for continued, regular information acquisition one can also derive principles for the development and maintenance of a personal acquisition-of-knowledge library and filing system. One potential benefit is that a personal library and filing system is readily available and thereby more likely to be consulted on an every day, problem solving basis. For as Weiss (1967) observes: "Facts, observations, discoveries, as items are but the nutrients on which the tree of knowledge feeds, and not until they have been thoroughly absorbed and assimilated, have they truly enlarged the body of knowledge" p. 209).

ADEQUACY OF RESEARCH DESIGNS GENERALLY

While interaction research should serve as the integrative core, and evaluating such research should receive high priority, the dominant research strategies in psychology are still experimental and correlational research. However, it is not just the dominance of these strategies that is important. As noted earlier, interaction research rests upon a foundation of experimental and correlational research. A laboratory generalization once achieved provides a first approximation of real relationships in the school setting, and it is then that interaction research is needed to identify more of the unaccounted for variance and to achieve a still better approximation of the real-school relationships.

The school psychologist needs to pay special attention, for example, to proximal and peripheral aspects of individual studies, as noted in Figure 4. One must pay attention to the adequacy of research designs generally, and the prime consideration in this case is validity. In an excellent summary of the requirements of adequate research, Campbell and Stanley (1963) identify two kinds of validity: internal and external validity. Of these, internal validity is the basic requirement because without it a research study's results cannot be interpreted. But having internal validity is only a necessary condition, for without external validity one cannot generalize findings.

In their just published book, Quasi-experimentation: Design and analysis issues for field settings, Cook and Campbell (1979) further divide the two types of validity originally invoked by Campbell and Stanley. While incorporating the early framework for understanding experimentation in the natural environment or in field settings, they substantially extend it in important ways, essentially expanding the two types of validity to four, including "statistical conclusion validity," "internal validity," "construct validity," and "external validity."

In overview, the practical value of these four types of validity is that they correspond to the four major decisions that the applied researcher faces. The first of these is whether there is a relationship between the two variables. This concerns statistical conclusion validity. If there is, then the question is whether the relationship between the operational variables is a causal relationship, which involves internal validity. If this

is satisfactorily determined, there is the need to consider the nature of the cause and effect constructs involved in the relationship. This relates to construct validity. Finally, the researcher would be concerned with the generalizability of the relationship across persons, situations, and times, which deals with external validity.

From an interactive point of view, there are other proximal considerations that need emphasis. For example, too often interaction-oriented research is characterized by inadequate conceptions of the learning child and school environment, and by a lack of psychological insights about significant aspects of intervention and its interaction with personal and situational factors. In their evaluation of several hundred studies dealing with aptitude and instruction methods interactions, Cronbach and Snow (1977) have identified many of these pitfalls, and their observations tell us by implication what to look for, and factors to weigh, in reaching substantive conclusions.

In addition to these considerations, Figure 4 indicates that evaluation requires attention to more indirect and subtle influences on research outcomes. In a series of studies, Rosenthal (1966, 1976) showed important experimenter biases upon the behavior of subjects in a laboratory. Still earlier Orne (1962) warned us about the influence of situational constraints and "demand" characteristics, indicating that these can vitiate the meaning of experimental findings in many studies. There also is a strong tendency for a "primacy effect" to occur in the reporting of unusual, novel, and ideologically compelling findings. A case in point is Pygmalion

in the classroom (Rosenthal and Jacobson, 1968), which continued to have widespread impact on educators and psychologists long after many negative results of research attempting to replicate this particular teacher expectancy effect had been reported.

ETHICAL RESEARCH PRACTICE AS A CRITERION IN EVALUATING RESEARCH

One aspect of research that normally receives little attention is the ethical problems that arise. While the current consensus of psychology is represented by the ethical principles in the conduct of research standards of the American Psychological Association (Committee on Ethical Standards in Psychological Research, 1973), there have been few systematic efforts to increase awareness of ethical problems in research. Present editorial policies of journals, for example, where most research is published, do not provide much help in this matter. The Federal government has set forth guidelines and regulations, as has APA, to promote ethical research practice, and such efforts are useful, but not necessarily constructive in the long run. In the end, psychologists need to work collectively to seek concrete solutions to ethical research problems, rather than depend solely on such abstract statements and Federal enforcement efforts to solve the problem.

In the meantime, the school psychologist who reads and evaluates research needs to familiarize him/herself with the APA standards and Federal regulations. With this in hand, one can then determine whether the research being evaluated is likely to have harmed or violated the rights of subjects. This of course is not a simple matter since it involves determining what rights and values needed to be protected, and whether the design and procedures utilized successfully protected these ethical requirements.

This process is difficult for still another reason. Each area of research poses special problems, and methods and procedures that may be adequate in one area may be grossly deficient in another. There also is always the question of whether in the process of protecting the rights of subjects the researcher has undermined the scientific value of the inquiry. Over time, however, it can be anticipated that new research methods will be developed to deal with the most common ethical issues, and school psychologists can speed up the development and use of such research methods if they take steps to assist in the dissemination of such information and reinforce the importance of its consideration in the evaluation of research.

RESEARCH AND ADVOCACY

In many ways the scientific and research enterprise is an adversary system. This is true of individual research studies, scientific methods in general, and in organizational aspects of psychology. The adversary model is exemplified in situations where there are claims and counterclaims, and arguments and counter arguments. Attempts at replication of experiments, logical critiques of research results, and publication based on peer review in journals are all examples of adversarial processes.

The adversary system and advocay, so well developed in law, not only has analogues in psychology generally. It also has important implications for research in school psychology, and a review of examples of such advocacy reveals both its benefits and dangers. A case in point is the IQ test and its social, political, and educational consequences. Kamin (1974) has investigated the literature on genetics and IQ, and reported a pattern

of carelessness, inadequate experimental designs, and misreporting and misrepresentation that amounts to an apparent major scandal. Recent reports of similar problems with the research of Burt have similar shock impact. Others, however, have closely examined Kamin's "evidence" and convincingly show that he engages in much the same statistical mistreatment, distortions of the evidence, innuendo about integrity, etc., of which he accuses others (Loehlin, Lindzey and Spuhler, 1975). A history of the uses and misuses of the Coleman report also exemplifies the dangers of social science advocacy when ideological considerations become paramount (Young and Bress, 1975).

THE RESEARCH-IN-ACTION PERSPECTIVE AND THE FUTURE OF SCHOOL PSYCHOLOGY

To bring these remarks to a close, I have spoken today about new directions for research in school psychology. As in all new directions, however, adaptability is essential, and to survive, the research-in-action perspective must negotiate the disjunction between school psychology's present and its future. But the present casts shadows on the future, and professions are guided as much by their vision of the future as by their past and present, and the more powerful this image, the more powerfully it acts in determining the actual future. Unfortunately, in school psychology there are different and competing images of the future, and in essence we are still a house divided against itself. There also is widespread criticism of both practicing and academic school psychologists, and the spector of the decline and demise of school psychology is frequently raised.

We can respond to this competition of ideas, to this division, and to the critics and proponents of decline and demise

with apathy. We can ostrasize the critics. We can anquish over the crisis of belief in ourselves, and in our future; or we can take up the challenge and work to create the conditions that will enrich and elevate our professional lives, and advance the quality of school psychology. While there is some evidence that this is beginning to happen, in the long run to successfully do this we will need a new, more powerful image of school psychology, one that will be dominant over the present, competing images.

Such a vision will recognize that research should inform one's actions as a school psychologist, and that the reality created by theory and research, which defines what <u>is</u> can become the basis for defining what <u>ought</u> to be. It will insist that we get beyond main effects to interactions and the interdependence of behavior, personal characteristics, and environmental factors; and that we examine not only individual child behavior but how children and significant others reciprocally influence each other's actions, and the ecological system. It will insist that to understand behavior and its ecological context we must first try to change it, and that the school psychologist, as intervenor and change agent, must spend more time than in the past in the acquisition, dissemination, and utilization of knowledge.

If it is to be successful, however, such a vision of school psychology must provide much more. It must help us to re-examine our foundations. It must deal with the issues and problems plaguing us at the present time and hold the promise of resolving them. It must make new distinctions and add new meanings to school psychology. It must create new alternatives and outline what <u>ought to be</u>. And ultimately, to be successful in transforming school psychology it must gain our personal commitment.

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See both sides

Handout for

Research in School Psychology:

The Problem and the Promise,

American Psychological Association, September, 1979,

New York City, Distinguished Service Award, invited

address by

Beeman N. Phillips

University of Texas at Austin

Table 1.

Role-Functions Ascribed to the School Psychologist

(derived from Hunter and Lambert, 1974)

1. Serve all children in the schools
2. Work frequently with groups, rather than individual children, parents and teachers
3. Act as advisor to total school program, including curriculum development
4. Apply findings from child development, learning, social, and physiological psychology
5. Handle staffing and guidance committees, and work through multi-discipline or team approaches
6. Assist classroom teacher in educational programming and behavior management, especially in relation to effort to keep children in the regular classroom
7. Deemphasize role in testing and classificatory diagnosis, and emphasize diagnostic-intervention role
8. Emphasize data-oriented problem solving and applied research
9. Supervize lower level school psychological services and related personnel
10. Assume responsibility for increased services to culturally disadvantaged and other handicapped children
11. Function as an expert in psychology and education
12. Function as a consultant to teachers, administrators, other school personnel
13. Assume major role in preventive efforts in relation to drug abuse, dropouts, and disciplinary problems

Table 1. continued

14.	Provide expertise in process of decision-making in scientific endeavors, and in helping relationships
15.	Facilitate interaction of community resources and the school, and coordinate all community psychological and service agencies with the school in referrals and followup
16.	Provide inservice education in child behavior and development, and instructional and behavioral interventions
17.	Help administrative personnel establish and implement goals and behavioral objectives for instructional programs
18.	Deal adequately with ethical and value dilemmas encountered in assessing and modifying child, interpersonal, and organizational relationships
19.	Utilize effectively skills in social interaction and communication techniques

Table 2.

Training Components of School Psychology Programs

(based on Goh, 1977)

Assessment of learning difficulties	Personality assessment
Assessment of behavior and social problems	Preventative mental health
Psychoeducational assessment	Professional roles and values
Teacher consultation	Educational programming for exceptional children
Psychodiagnostics	In-service training with teachers
Intervention techniques	Research
Intellectual development and evaluation	Human relation and communication skills
Professional ethics	Program development and evaluation
Consultation techniques	Quantitative skills
Modification of behavior and social problems	Community agency relation and consultation
Psychoeducatioal adjustment	Individual counseling
Remediation of learning difficulties	In-service training with other school personnel
School consultation (multi-level)	System analysis and evaluation
Child Development	Group counseling
Learning	Organizational change
Behavior modification	Community involvement
Classroom management techniques	

Table 2. continued

Parent consultation and education	Curriculum planning and evaluation
Current issues in school psychology	Psychotherapy
	Administrative skills

Table 3.

Advantages and Disadvantages of

Manipulative versus Interactive Research

(derived from Cronbach, 1975)

Strategy	Some Major Characteristics
Manipulative, experimental	Assumes that system to be investigated can be isolated, and conditions under which observations are made can be arranged, to far greater extent than is typically possible Delimited range of situations considered, fixing many aspects of the conditions under which subject is observed, so that interaction of any fixed aspect is thereby concealed Has only limited ability to detect interactions, emphasizing the main effects (i.e., the rule) in data analysis, with exceptions ignored as "error" variance

Table 3. continued

Strategy	Some Major Characteristics
Correlational	Accepts natural range of variation instead of shaping to hypothesis Sampling from a population of persons or domains of situations increases opportunities for generalization, but only about relationships Doesn't carry us far into interactions because it is impractical to obtain information in large number of situations
Interactive	Takes account of important variables in natural settings, and thereby provides better approximation of real world relationships Utilizes manipulative research to identify pertinent variables and possible mechanisms to study in more natural situations

Table 3. continued

Strategy	Some Major Characteristics
Interactive (cont.)	Increased ability to detect interactions, with exceptions taken as seriously as the rule, and preference for regression analysis, since while factorial design permits detection of some interactions, sizeable interactions are apt to be suppressed

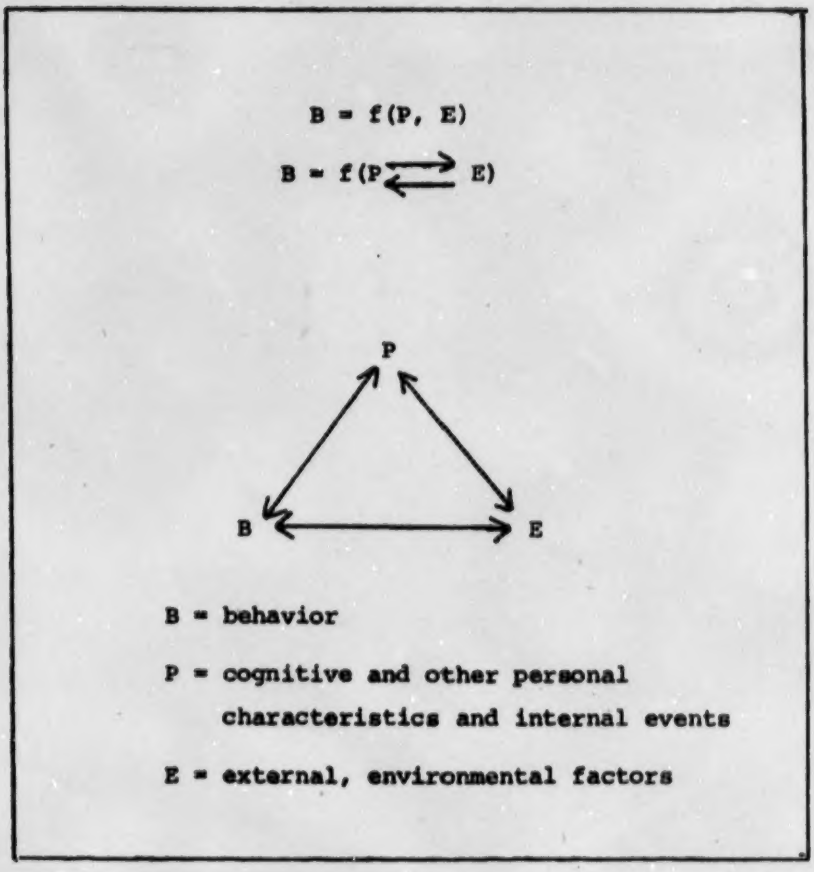

Figure 1. Alternative Conceptions of Interaction (after Bandura, 1977).

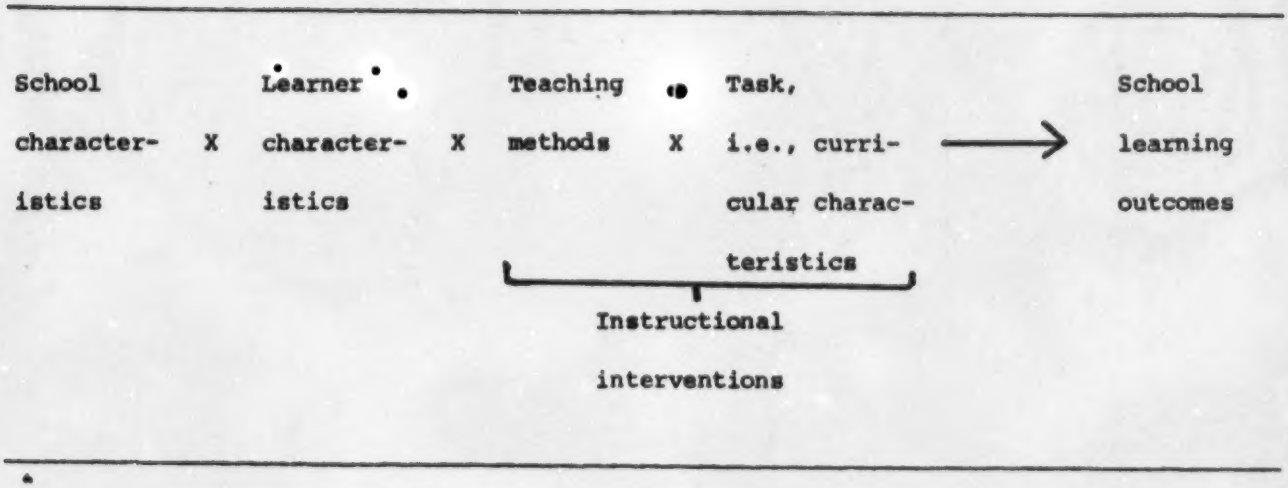

Figure 2. Instructional Intervention Paradigm.

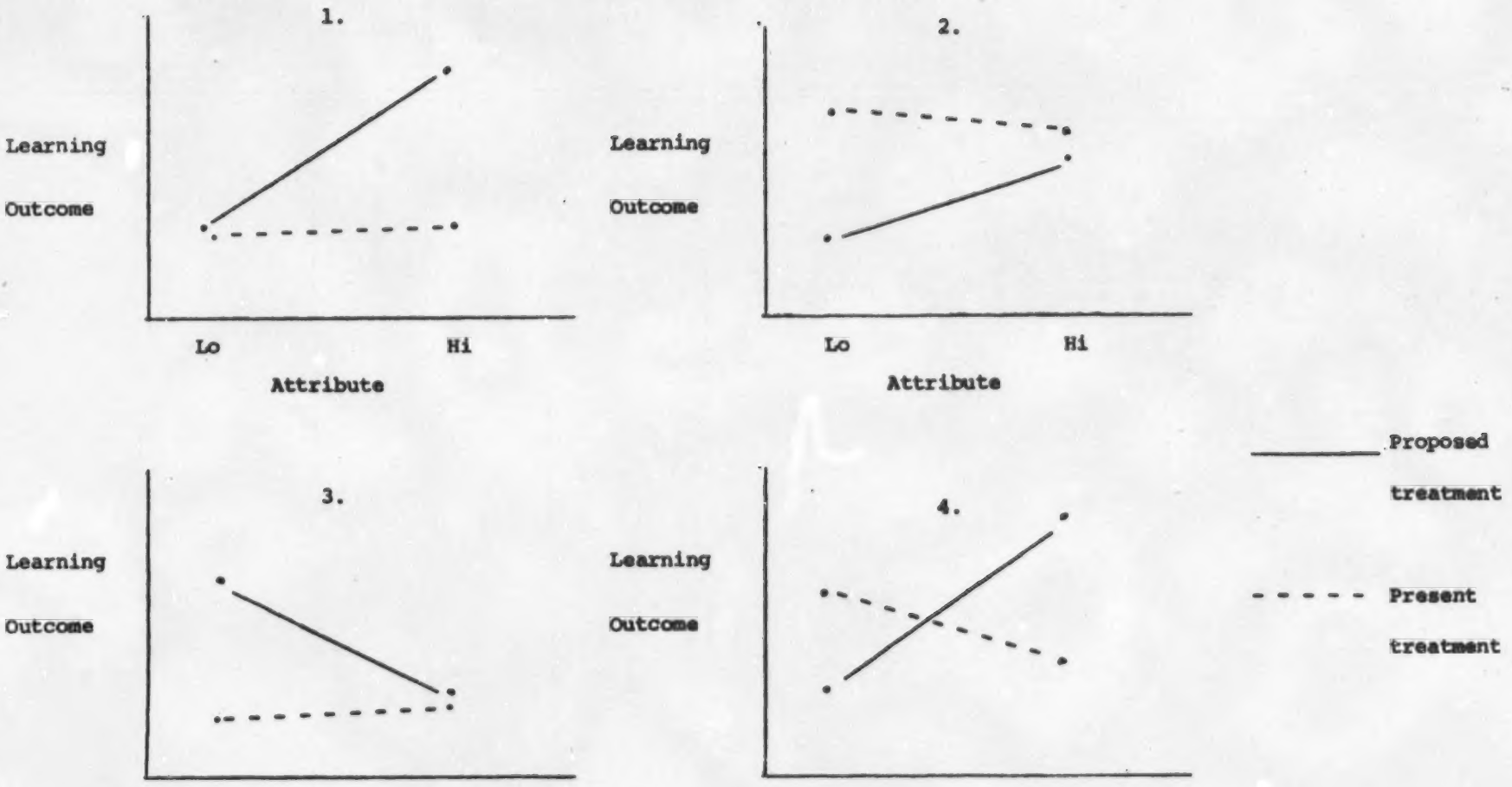

Figure 3. Examples of Ordinal and Disordinal Interactions Involving Individual Difference Variables and Educational Interventions.

TABLE 4

Guidelines for Voluntary Continuing Psychological Education (CPE) for Texas Psychologists and Psychological Associates

The following is a set of Guidelines for Texas psychologists and associate psychologists to follow in assessing their attainment in Continuing Psychological Education (CPE). The Guidelines are based on the attainment of *50 clock hours* of CPE in a *one-year period.*

Level 1. Accredited CPE including "accredited workshops, formal coursework, etc. This would include graduate or post-graduate coursework in psychology from accredited institutions of higher education; workshops sponsored by such accredited institutions or by national, regional, or state professional organizations in, or related directly to psychology, including AMA level one offerings; and other formalized educational activities sponsored by such professional organizations or institutions of higher education that would be recognized generally by Texas psychologists as relevant to psychology, as offered by competent professionals in the field, and as adding to the psychologist's expertise in an area where he or she is practicing or will practice psychology. (Minimum—10 hrs.).

Level 2. Nonaccredited CPE, including nonaccredited workshops, inservice training, attendance at scholarly paper sessions, etc. (15 hrs. maximum).

Level 3. Teaching psychologically-oriented academic courses (undergraduate and graduate) at an accredited institution, serving as an instructor of an accredited workshop, supervising graduate or postgraduate students in the provision of psychological services, etc. (15 hrs. maximum).

Level 4. Publication in recognized refereed psychological publications and/or presentation of scientific and scholarly papers at national, regional, or state learned societies. Actual clock hours spent may be counted up to a suggested maximum of 3 hours per published article or paper presentation; 7 hours per book chapter, monograph, etc.; and up to 13 hours for a book. These are guidelines only, since many additional factors must be considered, e.g., multiple authorship, prestige of the journal or book publisher, level of content of the publication, etc. The purpose here, and throughout the guidelines, is to suggest broad and flexible limits which encourage psychologists to engage in a diversity of CPE activities; this aim is accomplished at the expense of a rigid, arbitrary, and highly detailed point system. (13 hrs. maximum).

Level 5. Other nonsupervised CE including self-instruction, case conferences, professional education, interactions with consultants, participation as an officer in profession organizations, etc. (10 hrs. maximum).

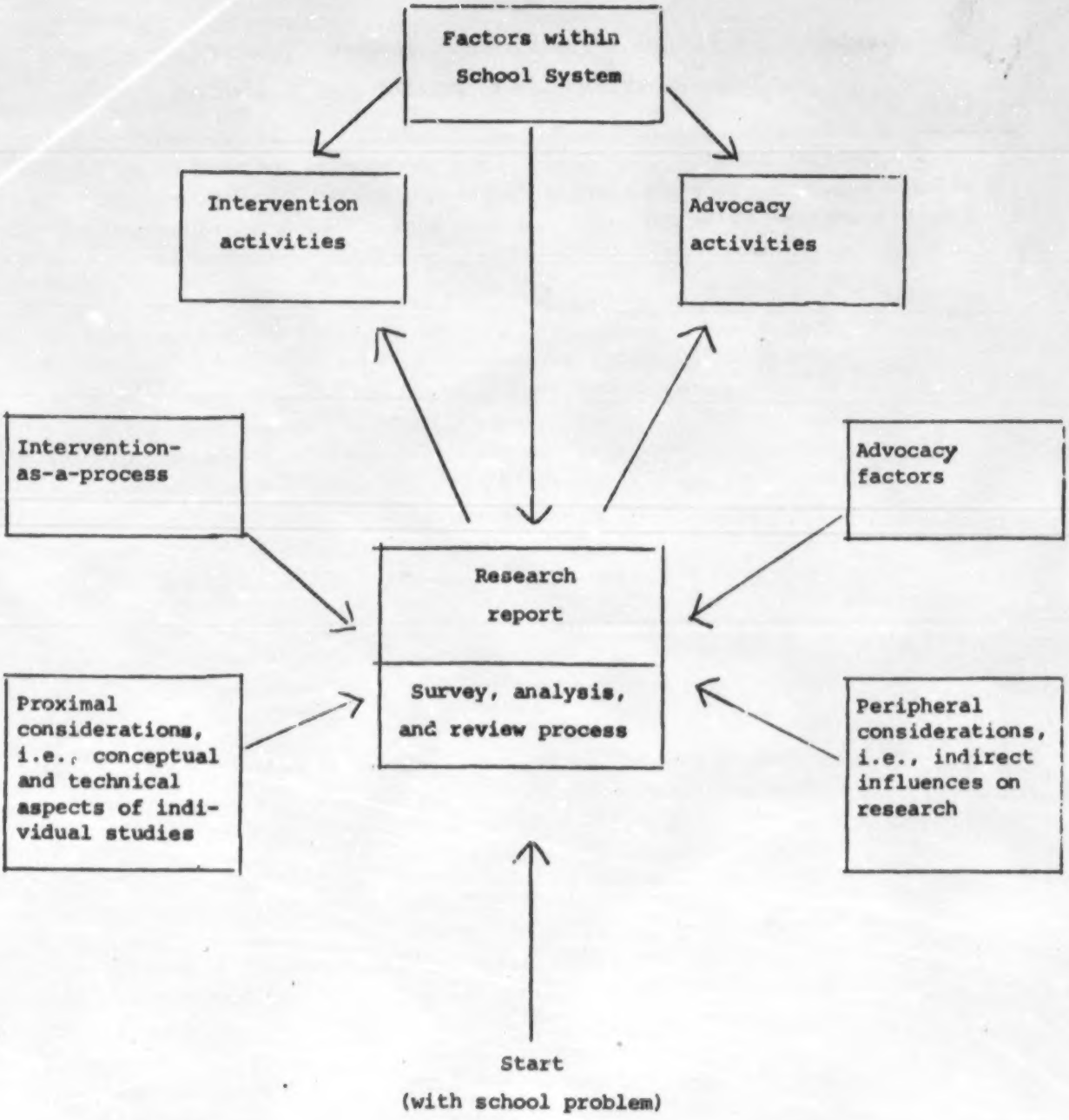

Figure 4. Aspects of Evaluating Research from an Interventionist Perspective.